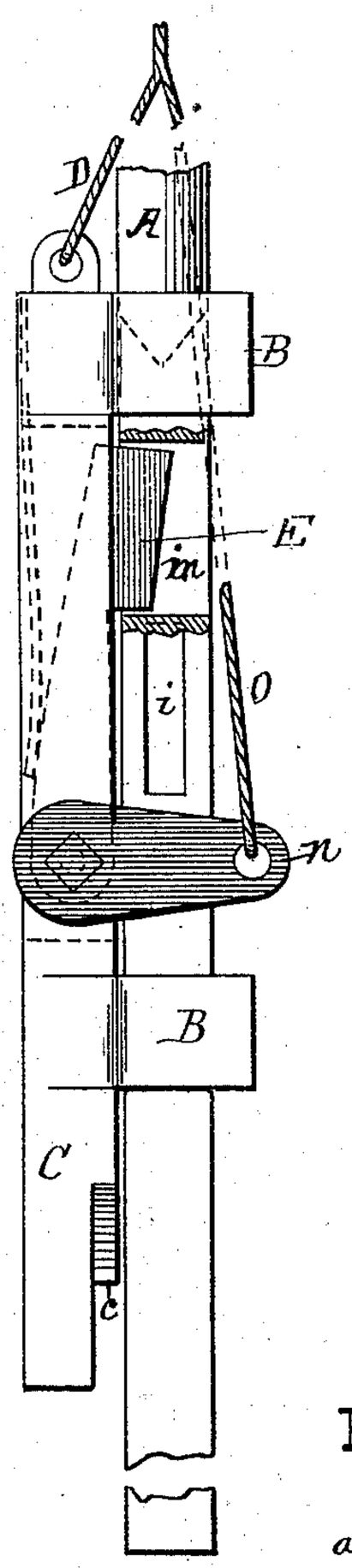
(No Model.) 2 Sheets—Sheet 1.

F. WHELAN.

WELL BORING APPARATUS.

No. 254,892. Patented Mar. 14, 1882.

FIG. 1.



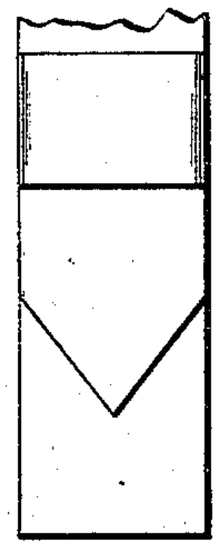


FIG. 3.

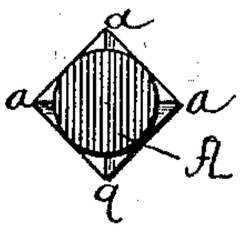


FIG. 5.

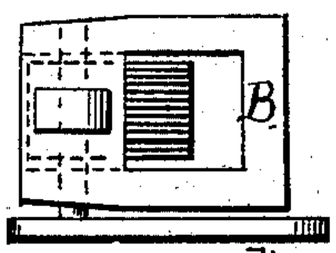
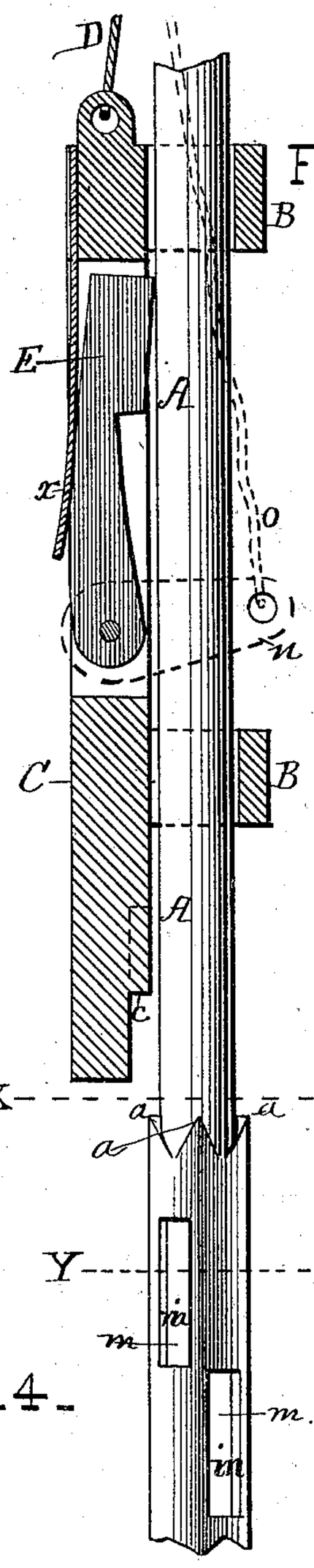


FIG. 4.

FIG. 2.



WITNESSES.

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(No Model.) 2 Sheets—Sheet 2.

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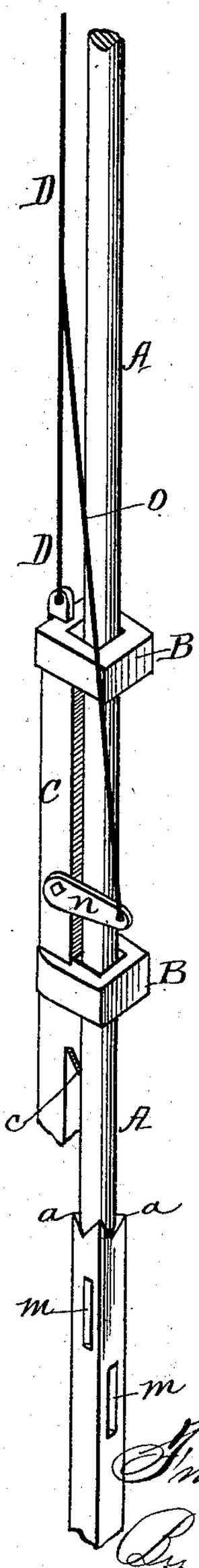
FIG. 6.



WITNESSES

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UNITED STATES PATENT OFFICE.

FRANK WHELAN, OF SAN FRANCISCO, CALIFORNIA.

WELL-BORING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 254,892, dated March 14, 1882.

Application filed May 6, 1881. (No model.)

To all whom it may concern:

Be it known that I, FRANK WHELAN, of the city and county of San Francisco, and State of California, have invented an Improvement in Well-Boring Apparatus; and I do hereby declare the following to be a full, clear, and exact description thereof.

My invention relates to certain improvements in well-boring apparatus; and it consists of a supplemental tool-holder so constructed and arranged as to operate in connection with a rod or series of jointed rods which extend from the top to the bottom of the tube or well, the lower joint or length being made square, or so formed as to receive and steady the clasps or guides from a short supplemental tool-holder which slips down upon one side of the main rod, and a wire or other flexible connection from its upper end, by which it may be suspended or drawn up with the tool without disturbing or removing the main rod. The latch is operated by suitable connection, so as to be detached when it is desired to draw the tool up, and by a peculiar device the tool-holder is always turned so as to fit the shank in the proper position. This tool-holding device can be utilized either in the drilling or boring of wells, or as a tube-clamp or drill-rod grab.

Referring to the accompanying drawings for a more complete explanation of my invention, Figure 1 is a view of my apparatus with the tool-holder attached to the rod in position for work. Fig. 2 shows it detached, so as to be raised out of the well. Fig. 3 is an enlarged view, showing the guide for directing the tool-holder to the proper position to attach to the rod. Figs. 4 and 5 are transverse sections. Fig. 6 is a perspective view.

A are the lengths of rod which extend from the top to the bottom of the well, and which are screwed together so as to present a smooth exterior surface. The foot of the lower length is made of any suitable shape, preferably square, to receive the guide-clasp links B from the tool-holder C. This tool-holder is a short length having its lower end adapted to receive and hold the different tools which are to be used, and it has a wire rope or other flexible attachment, D, extending from its upper end to the top of the well, where it may pass over a pulley, windlass, or other device by which it is drawn up and the tool-holder elevated out of the well, when desired, without disturbing the rods. When the tool-holder is let down the well with its clasps surrounding the rods it will be necessary to turn it when it arrives at the square portion of the rod, so as to slip over that part. This is effected by making acute angles *a* at the upper corners of the square portion, as shown, while the lower part of the tool-holder has a similarly-shaped acute angle, *c*, the apex of which is downward, so that when it arrives at the angles *a* it will be turned by whichever one it strikes, so that the openings in the links will exactly fit the square portion of the rod and slide down upon it. Within the upper part of the tool-holder C is a latch, E, fitted into a slot formed for the purpose. Elongated openings *m* are made in the square portion of the rod, and by the pressure of a spring, *x*, the upper end of the latch is forced into the opening *m* opposite which it arrives, and thus retains the tool-holder in place. The end of the pin upon which the latch turns extends out through the side of the tool-holder, and a short lever-arm, *n*, projects to one side from it. A short length of rope, *o*, extends from this lever to the main rope, and it is short enough so that the pull will affect it first, and thus operate the arm *n* and release the latch, after which the main rope will draw the tool-holder and tool to the surface.

By this construction it will be seen that any tool may be attached to the holder, lowered into the well and fixed to the boring-rods, which may then be turned so as to operate the tool. When a drill is to be used the pawl is removed, and the holder, with the drill, may be raised and dropped while being turned by the rod. After the tool-holder is connected with the rods by its latch it will be seen that the whole or any portion of the weight of the rods may be supported, so that the action of the tool can be regulated to a nicety.

When it is necessary to draw the tool up the latch may be disconnected and the tool and holder drawn to the surface, while the rods remain in their place. This will relieve the work of deep-well boring of much of the labor and delay, made necessary in the present methods, by withdrawing and disconnecting the rods whenever the tool must come out. By my

method the rods will move to one side of the tube, and thus allow the tool-holder to pass down by it easily, and the peculiar arrangement of the lower end insures a perfectly rigid connection with the rod when work is to be done, and an easy method for detaching the same. The rope or flexible connection may be joined in lengths, so that in commencing only as great a length of rope will be used as the depth of the well requires, and new lengths may be added as the depth increases; but it need not be disconnected while working, or until the well is finished.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. The tool-holder C, with its clasps B, sliding upon the rods A, and the rope or flexible connection D, by which it is raised or lowered independent of the rods, in combination with the square lower section of the rod A, to receive the clasps and unite the holder with the rod, substantially as and for the purpose herein described.

2. In a well-boring apparatus, the tool-holder C, having the clasps B to slide upon the rods A and fit the lower section, in combination with the acute-angled projections *a* on the rod, and the similar projection or guide, *c*, upon the holder, substantially as and for the purpose herein described.

3. In a well-boring apparatus, the tool-holder C, having the clasps B to slide upon the rods A and fit the lower section, in combination with the latch or catch E, which engages and locks in slots in the rod or shank, substantially as and for the purpose herein described.

4. In a well-boring apparatus, the tool-holder C, with its clasps B, sliding upon and fitting the lower end of the rods A, and united thereto by the latch E, in combination with the arm *n* and rope *o*, connected with the main rope or an equivalent device, substantially as and for the purpose herein described.

5. In a well-boring apparatus, a tool-holder, C, guided so as to move up and down the actuating-rods by means of a rope, D, without moving said rods, in combination with a latch or equivalent connection by which to unite said tool-holder with the lower end of the rods, substantially as and for the purpose herein described.

In witness whereof I have hereunto set my hand.

FRANK WHELAN.

Witnesses:

GEO. H. STRONG,

FRANK A. BROOKS.